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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, TRI V	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,996	JONSCHKER ET AL.	
	Examiner	Art Unit	
	TRI V. NGUYEN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *11,12 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/12/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, species (a), claims 1-10 and 13-19 in the reply filed on 04/11/08 is acknowledged. The traversal is on the ground(s) that the inorganic and organic surface modifications are closely related. This is not found persuasive because inorganic and organic modifications would lead to different chemical behaviors of the nanoparticles and are directed to chemical compounds in different classes thus resulting in an undue burden in the prior art search.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities: On page 2, lines 3-4, applicants made reference to the subject matter of "claim 1"; however, the instant claim 1 could be subject to changes throughout the examination of the applications. It is suggested that the actual wording of the instant claim 1 be recited.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "the nanoparticles" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the compounds "ZrOCl2, Ti" in line 4; it is unclear as to the identity of the claimed chemicals in view of claim 9 which requires an oxide, a hydroxide or a salt and the specification only recites TiOSO4 and ZrO2 on page 4 as surface modifying ingredient.

Claim Rejections - 35 USC § 102 & 103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in

> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 5, 9, 13, 14, 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Soane et al. (US 2003/0013369).

Soane et al. disclose a textile treatment agent that includes inorganic nanoparticles that are surface modified and various ingredients such as surfactants and fragrances (abstract, § 13, 81, 89-97, 124, 130 and 143). Furthermore, Soane et al. disclose the features of various textiles such as cotton, wool, silk and synthetic fibers (§ 93), a concentration of nanoparticles of 0.1 to 95% (§96), cationic nanoparticles (§ 97) and a diameter range of about 1 to 1000 nm (§ 81). It is noted that the inorganic surface modification is also met by the teaching of the silica or silane coated inorganic nanoparticles (§ 120-126, 133 and 134).

Accordingly, the teachings of Soane et al.anticipate the material limitations of the present claims.

7. Claims 1, 9 and 16-18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zuechner et al. (WO 01/83662 cited in the IDS - the English equivalent US 2004/0023824 is referred to hereon).

Zuechner et al. disclose a finishing textile agent that includes inorganic nanoparticles such as silica that are surface modified by various chemicals and additional ingredients such as surfactant, thickeners and perfumes (abstract and § 11, 16-22, 32, 36, 67, 77, 88 and 126). Furthermore, Zuechner et al. disclose the features

of various textiles such as cotton (§ 12), a concentration/content of nanoscale particles of 0.01 to 35 % by wt (§ 14-15) and a particle size of 5 to 500 nm (§ 10-11).

Accordingly, the reference of Zuechner et al. anticipates the material limitations of the listed claims.

In the alternative that the above disclosure is insufficient to anticipate the above listed claims such as selection of a specific ingredient, it would have nonetheless been obvious to the skilled artisan to achieve the composition, as the reference teaches each of the claimed ingredients within the claimed proportions for the same utility and such modifications are recognized as being well within the purview of the skilled artisan to yield predictable results.

8. Claims 1, 9, 13-15 and 18 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rohrbaugh et al. (US 2002/0151634).

Rohrbaugh et al. disclose a coating composition that includes inorganic nanoparticles such as oxides and silicates that are surface modified by various chemicals and additional ingredients such as surfactant, softeners and perfumes (abstract and § 44-46, 58, 59, 123, 124 and 197). Furthermore, Rohrbaugh et al. disclose the features of various textiles such as cotton and synthetic fibers (§ 26), a concentration/content of nanoscale particles of 1 to 100 % by wt and 0.01 to 5% of the coating composition (§ 79), a particle size of 2 to 750 nm (§ 44) and a cationic particle charged via a Al^{+3} salt (§ 69).

Accordingly, the reference of Rohrbaugh et al. anticipates the material limitations of the listed claims.

In the alternative that the above disclosure is insufficient to anticipate the above listed claims such as selection of a specific ingredient, it would have nonetheless been obvious to the skilled artisan to achieve the composition, as the reference teaches each of the claimed ingredients within the claimed proportions for the same utility and such modifications are recognized as being well within the purview of the skilled artisan to yield predictable results.

9. Claims 2-8, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. as applied to claim 1 above.

Soane et al. disclose the composition of claim 1 but, however, fails to specifically disclose a composition comprising the agents, thickness and diameter ranges in the amounts as those recited by the Applicant.

Regarding the thickness of the layer, Soane et al. disclose nanoparticles being in the same range as applicants to coat the textile thus it would be obvious that the thickness ranges would fall within the same range (abstract and § 81).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the

optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I. In the instant case, it would have been obvious to optimize the components based on the desired effect - see the various modifications shown in the examples starting on § 99.

Regarding the inorganic surface modification agent being a Lewis acid, Soane et al. teach the nanoparticles being contacted with a magnesium chloride and sodium chloride (§ 95 and 97); thus the same resulting effect would be expected since each of the ingredients are present.

10. Claims 2-8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuechner et al. as applied to claim 1 above.

Zuechner et al. disclose the composition of claim 1 but, however, fails to specifically disclose a composition comprising the agents, thickness and diameter ranges in the amounts as those recited by the Applicant.

Regarding the thickness of the layer, Zuechner et al. disclose nanoscale particles being in the same range as applicants to coat the textile thus it would be obvious that the thickness ranges would fall within the same range (abstract). Furthermore, the surface modifying agent such as polysulfonates is present in the amount of 1 to 8% wt (§ 16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff*, 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I.

11. Claims 2-8, 10, 16, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohrbaugh et al. as applied to claim 1 above.

Rohrbaugh et al. disclose the composition of claim 1 but, however, fails to specifically disclose a composition comprising the agents, thickness and diameter ranges in the amounts as those recited by the Applicant.

Regarding the thickness of the layer, Rohrbaugh et al. disclose nanoparticles being in the same range as applicants to coat the textile thus it would be obvious that the thickness ranges would fall within the same range (abstract and § 44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch,* 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). See also *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990), and *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In addition, a *prima facie* case of obviousness exists because the claimed ranges "overlap or lie inside ranges disclosed by the prior art", see *In re Wertheim,* 541 F.2d 257, 191 USPQ 90 (CCPA 1976; *In re Woodruff,* 919 F.2d 1575, 16USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2131.03 and MPEP 2144.05I. In the instant case, it would have been obvious to optimize the components based on the desired effect - see the various modifications shown in the examples starting on § 189.

12. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. or Zuechner et al. as applied to the claims above, and further in view of Hamers et al. (US 2004/0025262).

Soane et al. or Zuechner et al. disclose the claimed textile agent but do not explicitly disclose a surface modifying agent being a Lewis acid that is $AlCl_3$ or $ZrOCl_2$. In an analogous art, Hamers et al. disclose the coating nanoparticles with a polyvalent metal ions via aluminum chloride (§ 108) thus Hamers et al. shows that a surface modification of nanoparticle via a Lewis acid was known in the prior art at the time of the invention. Since each individual element and its function are shown in the prior art, albeit shown in separate references, the difference between the claimed subject matter and the prior art rests not on any individual element or function but in the very combination itself- that is in the substitution of the inorganic modifying agent. Thus, the simple substitution of one known element for another producing a predictable result renders the claim obvious. The claims would have been obvious because the technique for improving a nanoparticle agent was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement in other situations.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri V. Nguyen whose telephone number is (571) 272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. V. N./
Examiner, Art Unit 1796
July 9, 2008

/Lorna M Douyon/
Primary Examiner, Art Unit 1796